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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/648,965	08/25/2000	Leslie N. Keller	0007056-0032/P5034/RHS	5999

7590

10/31/2003

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EXAMINER

CHANG, ERIC

ART UNIT	PAPER NUMBER
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2185

DATE MAILED: 10/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/648,965

Applicant(s)

KELLER, LESLIE N.

Examiner

Eric Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 20-49 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 20-21, 23-30, 33-34, 36-43 and 46-49 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by U.S. Patent 6,073,220 to Gunderson.
5. As to claim 20, Gunderson discloses a boot device for a computer comprising:
 - [a] two storage devices configured to store an operating system for booting the computer [col. 13, lines 19-25 and 48-49];
 - [b] wherein both devices appear as a single target device to the computer [col. 13, lines 26-27]; and
 - [c] wherein the boot device is configured so the computer system can access the operating system from either storage device in the event of a failure of one of the storage devices [col. 10, lines 59-66].

Gunderson teaches a boot device for a computer system wherein two storage devices are available to for providing the operation system during the boot process. The two storage devices appear as a single device because the backup storage device is made invisible to the computer system. However, if the computer system cannot access the operating system from the primary storage device in the event of failure, the computer system can access the operating system from the backup storage device, substantially as claimed.

6. As to claims 21 and 34, Gunderson discloses the boot device is configured to receive read access from the computer system and respond with read data from either the first or second storage device [col. 1, lines 8-13]. Gunderson teaches that data may be accessed from either the first or second storage device, depending on the failure status of one of said storage devices.

7. As to claims 23-24, 30, 36-37, 43 and 47, Gunderson discloses the boot device receives write data from the computer system and stores data on both the first and second storage device [col. 3, lines 58-67, and col. 4, lines 1-11]. Gunderson teaches that the data written to the primary storage device is also written to the backup storage device by means well known in the art [col. 10, lines 17-58]. Furthermore, Gunderson teaches that the second storage device is configured to mirror the first storage device [col. 4, lines 20-24].

8. As to claims 25-26, 38-39 and 48, Gunderson discloses the boot device is configured to:
[a] detect a failure of one of the storage devices [col. 3, lines 11-18, and col. 5, lines 11-14];

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[b] receive a replacement storage device for the failed storage device [col. 5, lines 24-26];
and

[c] mirror the non-failed one of the storage device to the replacement storage device [col. 10, lines 59-67, and col. 11, lines 1-7].

Gunderson teaches that the boot device can detect when one of the storage devices has failed, and facilitates the replacement of said drive. While the drive is being replaced, the computer system may continue to operate using the backup storage device, because the backup storage device contains all of the data from the primary drive mirrored, and can therefore be substituted in at any time [col. 4, lines 15-24]. When the failed drive has been replaced, Gunderson provides means by which data is mirrored from the non-failed drive to the replacement drive. In addition, because Gunderson teaches that the boot device detects and communicates failure information [col. 3, lines 11-18], it would be obvious that such communications would occur over any means well known in the art, such as a serial interface, substantially as claimed.

9. As to claims 27-29 and 40-42, Gunderson discloses a first and second port connecting said first and second storage devices, respectively, to the computer system, as a single target device [FIG. 1, and col. 13, lines 19-27]. Because they appear as a single device, it would be obvious to one of ordinary skill in the art that the computer system would treat them as having the same WWN with which to access the boot device. Furthermore, Gunderson teaches that if one of the ports fails, the storage devices may still be accessed through the other port [col. 3, lines 15-18].

10. As to claim 33, Gunderson discloses a boot device comprising a first and second storage device containing an operating system and appearing as a single device, wherein a computer system can access either said first or second storage device in the event of a failure of one of them. Because Gunderson teaches the boot device, Gunderson also teaches the computer system comprising said boot device, substantially as claimed.

11. As to claim 46, Gunderson discloses a boot device comprising a first and second storage device containing an operating system and appearing as a single device, wherein a computer system can access either said first or second storage device in the event of a failure of one of them. Because Gunderson teaches the boot device, Gunderson also teaches the implemented by said boot device, substantially as claimed.

12. As to claim 49, Gunderson discloses the method further comprises removing one of the storage devices from operation [col. 5, lines 11-26], and restoring operating systems from a first storage device to a second storage device [col. 10, lines 59-66]. If the contents of the second storage device differs from the first storage device, through the restoration process, the contents of the second storage device may be mirrored from the first storage device, using the means taught by Gunderson. In this way, Gunderson provides for restoring operating systems from the first storage device if the upgrade process for the second storage device does not successfully complete, substantially as claimed.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 22 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,073,220 to Gunderson, in view of U.S. Patent 5,210,860 to Pfeffer et al.

15. As to claims 22 and 35, Gunderson teaches all of the limitations of the claim, but does not teach that the boot device is configured to send a read access to both the first and second storage device and return data from whichever responds first.

Pfeffer teaches that mirrored drives using duplexed disk controllers are configured to send a read access to both the first and second storage device and return data from whichever responds first [col. 5, lines 60-68, and col. 6, line 1].

At the time that the invention was made, it would have been obvious to a person of ordinary skill in the art to employ the disk read means as taught by Pfeffer. One of ordinary skill in the art would have been motivated to do so that data would be continuously available to the computer system.

It would have been obvious to one of ordinary skill in the art to combine the teachings of the cited references because they are both directed to the problem of implementing a mirrored

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disk drives. Moreover, the disk read means taught by Pfeffer would improve the responsiveness of Gunderson because it allowed for faster retrieval of data from the boot device.

16. Claims 31-32 and 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,073,220 to Gunderson, in view of U.S. Patent 6,140,926 to Hayden et al.

17. As to claims 31 and 44, Gunderson teaches all of the limitations of the claim but does not teach that a redundant power supply is configured to provide power if another power supply for the boot device fails.

Hayden teaches that separate power sources may be used to power disk drives [col. 1, lines 20-35].

At the time that the invention was made, it would have been obvious to a person of ordinary skill in the art to employ redundant power supply means as taught by Hayden. One of ordinary skill in the art would have been motivated to do so that power can be supplied to the boot device in the case of power supply failure.

It would have been obvious to one of ordinary skill in the art to combine the teachings of the cited references because they are both directed to the problem of providing a fail-safe hard drive. Moreover, the redundant power supply means taught by Hayden would improve the availability of Gunderson because it allowed the computer system to continue operating through a power failure condition.

Furthermore, use of other redundant power supplies, such as batteries, uninterruptible power supplies and capacitors are also well known in the art for providing backup power to computer systems in the case of power failure.

18. As to claims 32 and 45, Gunderson teaches all of the limitations of the claim but does not teach that the boot device further comprises an LED configured to indicate if one of the storage devices fails.

Hayden teaches that LEDs are used to indicate if one of a plurality of storage devices fails [col. 3, lines 44-54].

At the time that the invention was made, it would have been obvious to a person of ordinary skill in the art to employ the LED indicator means as taught by Hayden. One of ordinary skill in the art would have been motivated to do so that the occurrence of failure of a storage device within the boot device can be visually conveyed to the user of the computer system.

It would have been obvious to one of ordinary skill in the art to combine the teachings of the cited references because they are both directed to the problem of providing a fail-safe hard drive. Moreover, the LED indicator means taught by Hayden would improve the operation of Gunderson because it allowed the user to be visually notified of the failure of a storage device even if its corresponding power supply has also failed.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Chang whose telephone number is (703) 305-4612. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Lee can be reached on (703) 305-9717. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

October 21, 2003


THOMAS LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100